

IN THE SPECIFICATION:

Please replace paragraphs [0007] and [0009] with the following amended paragraphs:

[0007] Titanium nitride layers can serve as barrier layers against diffusion, including copper diffusion, in semiconductor device structures, e.g., contacts, vias and trenches. Deposition of an effective and useable titanium nitride barrier layer realizes good step coverage, sufficient barrier thickness at the bottom of device features and a conformal film having a smooth surface for further processing steps. However the TiN barrier layer must be as thin as possible to accommodate the higher aspect ratios of today's devices. Additionally, the TiN barrier layer must be inert and must not adversely react with adjacent materials during subsequent thermal cycles, must prevent the diffusion or migration of adjacent materials through it, and must have low resistivity (exhibit high conductivity), low contact or via resistance and low junction leakage.

[0009] However, MO CVD TiN does not ~~have as~~ provide good barrier performance to copper diffusion ~~as compared to~~, for example, IMP tantalum or IMP tantalum nitride. This film contains carbon and is a porous film that easily absorbs oxygen thereby becoming highly resistive and unstable. It is critical to have an effective barrier with copper metallization. Electromigration of copper into the silicon substrate ruins device performance.